

THE SCIENCE OF FARMING

Answers by the Veterinarian

Dr. A. S. Alexander
Wisconsin College of Agriculture

Obstructed Teat

ONE of our cows is a hard milker and the milk comes in a fine stream. There is something growing in the end of the teat that keeps back the milk and running a darning needle in it does no good. I use a milking tube to draw off the milk when I have not time to milk her in the usual way. Is there any way in which I could cut out the growth or make the cow easier to milk? If not, I think it will be better to dry her off.

—M. A. R., Illinois.

Reply—Any dealer in veterinary instruments will sell you a teat bistoury or "sitter" by which the growth should be cut in four different directions. First cleanse the teat with a 1 to 1000 solution of bichloride of mercury. Then introduce the sterilized milking tube very slowly to see how far it goes in before the milk runs through it. When this has been determined introduce the teat sifter as far as the place to which it was necessary to run in the milking tube; then spring the little knife of the bistoury, and, holding the teat firmly to allow the knife to cut, pull out the bistoury, and in so doing cut through the obstruction. Repeat the operation four times, each time making the cut in a different direction. After the cutting put a lead teat plug in the teat and tie it there between milkings. The teat will spray milk at first, but if the lead plug (dilator) is used right along until healing takes place the teat should milk easily as soon as healing is complete.

Quarter Crack

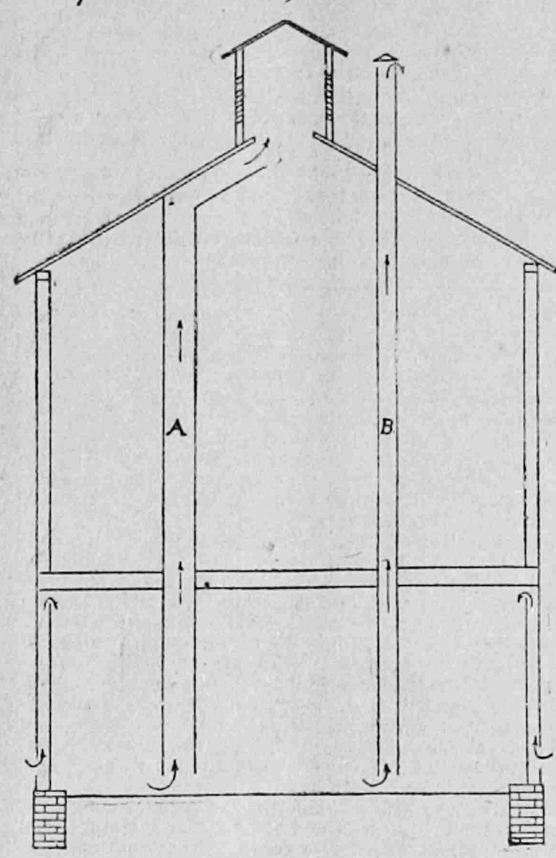
I HAVE a good gelding that has been lame from a split hoof. The crack comes right down from the hair and goes half way to the shoe. The blacksmith put a nail through the crack and it holds it shut so that blood does not come out any more. The horse is still lame. Will the nail cure this trouble?

—N. M., Minnesota.

Reply—The nail acts as a clamp to keep the crack from spreading, but it is in no way a cure. The hoof grows down from the coronary band at the crown of the foot and the crack remains as a permanent crack. If treatment is not given to the coronary band, in which the cause of the condition really is located, the veterinarian treats such a case by clipping the hair from the coronet; cleaning out the crack to make sure that pus is not present, and then fires the part as follows: A line is deeply burned almost through the horn of the hoof wall directly across the crack, just under the hair at the top of the hoof. On this line is a base a large V is burned in the coronet skin with the apex of the V resting exactly upon the line at the top of the crack. The V is burned quite deep with a cherry-red hot iron applied over and over again until the mark is of a deep, almost black color. The crack begins to exude, but great care has to be taken not to cut through the skin. A semi-circular portion of the horn of the wall at the shoe under the crack is cut out so that when a flat bar shoe is put on the wall does not come in contact with the iron at the part cut away. After the shoeing and firing the entire coronet should be blistered with cerate of cantharides and the horse should be kept tied up for three days; then the blister should be washed off and a little lead applied daily for a week, during which time the horse may be loose in a box stall. Repeat the blistering at intervals of three or four weeks until a V of new horn grows down where the crack was present, and in five or six months the crack will have practically grown out so that the wall will be sound. The horse by preference should run out for the summer months while the new wall is growing down.

It Pays to Feed Live Stock Pure Air

By Professor J. H. Grisdale



Good Way to Supply Fresh Air Without Drafts

Here is shown the King system of ventilation. When there is a cupola the foul air is drawn up the shaft A. Without a cupola shaft B must be made. With this system fresh air always is circulating in the barn. The system is worked on the theory that air filled with carbon dioxide (in exhaled air) is heavier than pure air and is found near the floor. Cold air is heavier than warm air and the fresh cold air coming in through the intakes forces the bad warm air up the shafts. The longer the shafts the better they "draw."

I had the experience of feeding a bunch of fifteen steers last year during the early part of the winter and they made better gains during the months of November and December, when they were outside without any protection except the shed into which they could go to sleep and in which there was hardly room for them to stay even when stormy, and they made gains of over two pounds a day.

Just to show you the reverse of this picture I want to give you an experiment we conducted five or six years ago. We had a barn thirty-five feet wide by forty-two feet long, and we put into that barn some thirty head of steers. It was very poorly ventilated. We fed them there all winter; they cost us something like 3½ cents a pound for every pound put on, and they made very small gains. It was a very unsatisfactory experiment so far as profits were concerned, but it demonstrated to us that steers fed under such conditions were not likely to make a profit. Similar steers taken from the same lot fed in an adjoining building where there was good ventilation, made gains of 100 pounds for from \$5 to \$6. We took this same building, just to prove to ourselves that it did not depend upon the building, but rather upon the lack of supply of air. We ventilated that building thoroughly and put

they forgot to open them again. I do not mind closing the inlets a little when it is cold; but when it comes warm they should be opened up. I have known men to condemn the King system of ventilation, and the reason it did not work was because they did not pay attention to it; they did not open the outlets when they should. It is nearly always from lack of attention that a system does not work. Ventilation is a thing that requires just as much attention as the feeding of the animal. It is a thing that must be attended to every day and every little while.

Just to show you how absolutely necessary it is to give attention to a system of ventilation I might mention an experience we had last winter. We put muslin curtains on a barn, eighteen on each side, and when the temperature was such and such outside it was of course necessary to regulate the windows to get the right amount of air, and when the temperature rose we had to open them a little more or close them up when the temperature fell outside; but we found another controlling influence which had to be reckoned with. If there was no wind blowing, then we had to open every window. If there was the least current of air, then we had to close up some of the windows. I have seen every window open, the temperature outside below zero, and the temperature inside around 80 degrees Fahrenheit. Now that system, without the closest attention, is no good at all. We found it darkened the windows too much and was hard to control.

Another system that we have tried is the Rutherford. We found that the Rutherford system as we tried it, we have tried the King system and under certain conditions it has worked very well, but it is apt to be neglected. It requires more attention than does the Rutherford. By the Rutherford I mean the system where the air enters at the floor and leaves at the ceiling. The King system of ventilation is where the air enters at the ceiling and leaves at the floor. Professor King was working on the principle that the foul air consisted largely of carbonic acid gas, which would be heavier than pure air, and although it would rise to the ceiling at first, it would soon cool and sink to the floor. The Rutherford system goes on the principle that we must have a rapid and constant circulation of air, and to get that we must make use of the principle that the warmer and therefore fouler gases rise and the heavier ones are found at the bottom; therefore we let the heavier air in at the bottom and let the warm air out at the top and have a constant circulation. We have a barn where these two systems can be put in operation. We tried it awhile with one and then with the other. We found these disadvantages: Where the air came in at the floor and went out at the ceiling the temperature was uniform. If it was 40 degrees at the floor it was 40 degrees at the ceiling. We had five or six thermometers and took the readings every night or morning. In that same barn we closed up that system of ventilation and opened up the Rutherford system, and we had to abandon the King system in that stable. We are introducing it in another barn and hope to give it a more thorough trial there. The Rutherford system is thoroughly described in a bulletin issued by the department of agriculture for the dominion of Canada.

Questions of the Feed Lot

Professor Herbert W. Mumford
Illinois College of Agriculture

Treatment of Ringworm

"SEVERAL of my heifers are affected with a scab-excess effect. It is not confined to any particular part of the body. It is a dry, horny, colored skin, many of them are round as a silver dollar. I can pull the scab off easily with my finger nail, when it exposes a deep red, raw-appearing surface, slightly elevated, but no blood flows. Some of them are as small as a dime and many as large as a silver dollar. Some of the scab grows around the eyes, well up on the lid. They do not seem to discomfort the animal in any way, neither are they tender or painful to touch or to squeeze them. They are not deep-seated in the skin. I am quite well assured that it is an infection of some kind on account of the number of animals (five or six) being thus affected. Can and will you give me a diagnosis and prognosis? I would also be truly thankful for a suggestion on the treatment of the trouble. If treatment of any kind is necessary. The last time I was out to the farm I put some 40 per cent solution of formalin upon one of the growths, but I have not had time to observe the result. I thought I would try lysol or cresoline the next time I went out. Will it be likely to spread to other cattle? Will it render them unsuitable for the market? I expected to start them on full feed this month, but do not wish to throw my corn away if the trouble is likely to prove serious. Any suggestion you may give will be gratefully received."

From your description this is probably a form of ringworm common among cattle. It is not likely to prove serious, being of a local nature, yet I would advise the following treatment: Scrape the outer scales off the infected areas with a blunt knife, and apply tincture of iodine with a feather. Repeat in a week if the first application is not sufficient. When making application about the eye care should be taken not to get iodine into the eye.

Albuminoids Makes Meat

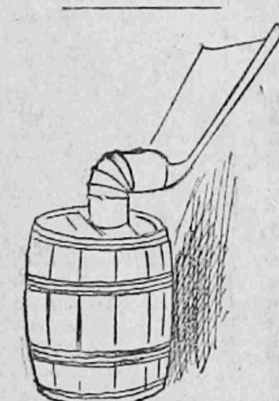
ALBUMINOIDS are the only constituents of the food which are capable of being transformed into flesh. They will also produce heat and mechanical work, but fat and carbohydrates, especially the latter, are the cheapest materials for this purpose. To make the most economical use of foods the albuminoids should be fed in such quantities that they will do the work which they alone can do, and allow the heat of the body and the energy for the work to be obtained from the cheaper fat and carbohydrates. These are the facts which form the basis of the balanced rations and feeding standards for a decade. Naturally a young, growing animal will require more protein in its food than one full grown; for it is building up bones and muscles—both of which require protein. Thus milk, which is the natural food of the young animal, is rich in protein. Again, a cow giving milk requires an abundance of protein, because the feed is the source of the protein of the milk. It is true that a horse, for instance, may do a greater amount of work than the food fed will furnish energy for, or that a cow will give a larger amount of milk than the food will warrant, but this is done at the expense of the reserve of materials stored in the body, and as a result the horse or the cow becomes thinner.

TOPICS OF INTEREST TO FARMERS

Cure of Tobacco Diseases

Tobacco is subject to a number of diseases, among them black spot, white rust, leaf blight, mildew and stem rot, mosaic disease and wilt; and there are parasitic plants, such as broom rape, that do considerable damage.

The wilt is a bacterial disease and can be detected by the discolored vascular tissues of the stems. Rotation is the only means to prevent it. Most of the fungous diseases can be prevented by clean cultivation, clean seed and some care taken in transplanting to discard all diseased seedlings. Applications of solutions of formalin (1½ pints formalin to 50 gallons of water) to plant beds prevent the disease. Insect depredations are prevented by use of paris green spray (½ pound to 30 gallons of water).



No Mosquitoes Bred Here.

Keep your rain barrel covered. One barrel may be the breeding place for enough mosquitoes to infest a whole neighborhood of the entire farm. That malaria is caused by a certain type of mosquito has been proved beyond a doubt; with out the pests no such sickness would exist.

Cultivating Weeds Alway

ONE reason why we do not get rid of the weeds on our farms is because we try to cultivate too much land. To keep weeds down crops must be cultivated all the time, and if we have more land than we can cover as often as needed the weeds will get the better of us every time. Except our grain farmers, whose large acreage is necessary to make money, we believe in the "small farm, well tilled," rather than the big farm, half worked and crops smothered by weeds.

Keep Books on the Farm

WE HAVE kept farm records since 1895; can show in any year during that time the number of bushels of grain, head of live stock, pounds of butter, number of fowls, dozens of eggs, etc., sold or bought, to whom sold, and the date; also expenses of various kinds, such as groceries, clothing, hired help, taxes, interest, insurance and all sundry items. Our method is simple. A pencil and memorandum book will keep the transactions. We then transfer them to a farmers' account book designed for that purpose. We also keep a bank check book for convenience and safety. At the end of each year we take an inventory showing our resources and liabilities.—F. A. Thomas

Selling Fresh Eggs

THE following on the subject of care and marketing of eggs is by the manager of one of the largest poultry commission companies in Missouri: "As every one knows, the egg production of this state amounts to millions of dollars annually, and all the writers and institutes urge a larger production; but we who buy and sell these eggs believe that if the farmers would take better care of what they now produce it would make them more money than to enlarge the pro-

duction. With most farmers 'an egg is an egg,' but when it comes to the sale of them to the people who eat them it is found that the consumer does not think so, and we have to grade them accordingly. For example, in the month of July I bought 1,600 cases of eggs, costing about 14 cents per dozen here. Of these 70 per cent were fresh, 20 per cent were stale, small and dirty, and sold for 11 cents per dozen, and 10 per cent were rotten and were an absolute loss. The August loss ran about 5 per cent higher, the September loss about the same; the October loss has been about one-half less on bad eggs, but the per cent of small and dirty has been about the same. November receipts are generally fresh stock, but in December we usually receive a lot of held, stale stock that forces down the market prices from 2 to 3 cents per dozen, resulting in financial loss to all parties concerned.

"If one firm shows losses as above stated, just think what the entire loss in the United States amounts to. It is simply enormous, and that is not all; when eggs are fresh people will eat them and will pay good prices to get them, but just as soon as they get a few that are not strictly fresh they turn to something else and eschew eggs. I do not believe that eggs would ever sell for less than 15 cents per dozen in the country if all came to the market fresh and firm. We urge the farmers to observe the following rules, and give us good, fresh, clean stock,

and they will find that it will fully repay the extra care:

- "1. See that the hens have clean, dry nests to lay in.
- "2. Gather the eggs daily and keep in a cool, dry place—not in the kitchen or damp cellar.
- "3. Market them at least once per week; oftener if possible.
- "4. Do not wash eggs; they soon spoil.
- "5. Do not market eggs that have proved not fertile in the incubator; it is criminal.
- "6. Use the small and dirty eggs at home; they are just as good if you know they are fresh, but they lessen the value of the others when they reach the market.
- "7. Do not pack in salt or damp sawdust; an egg will absorb any odor that butter will."

Alfalfa Sown on Sod

EVEN under dry land conditions a stand of alfalfa may be secured on some kinds of prairie sod, by simply disking the ground thoroughly, sowing the seed and covering it with a harrow. The disking must be thorough. This will only answer well in instances where the prairie or bench land sod is not very thick or dense, and where the soil conditions naturally favor the growth of alfalfa. Fair stands of alfalfa have thus been obtained.

Do Not Expose Manure

MANURE loses heavily through leaching when exposed to the weather. Through fermentation it loses only in quantity and in nitrogen, but through leaching it loses not only in quantity and nitrogen, but in the mineral elements as well. Careful experiments at Cornell University indicate that horse manure exposed to the elements for six months will lose at least one-half of its fertilizing constituents. The Kansas experiment station found that in the same length of time fully one-half of the gross manure and 40 per cent of the nitrogen were lost. The New Jersey station found that ordinary manure exposed to leaching for 109 days lost 38 per cent of its nitrogen, 52 per cent of its phosphorus and 47 per cent of its potassium. Other careful experiments have shown that manure exposed to the weather for several months not only loses largely in amount, but that it is not worth nearly so much, ton for ton, as when fresh. There are several ways to preserve manure from loss. One way is to keep it under shed and thoroughly tramped to exclude the air, using plenty of bedding to absorb the liquid and keep the manure clean. Another way is to pile the manure in a pit and keep it thoroughly wet. This will exclude the air and keep in the carbon dioxide. Under these conditions the bacteria cannot develop and fermentation cannot take place.

Sow's Milk Best for Young

FOR THE first weeks of a pig's life the mother's milk is its drink as well as food, and therefore in caring for suckling sows it should be the aim to so feed them that milk of only medium richness will be furnished. Instead of a limited supply of that which is extremely rich, the latter being less healthful and more liable to cause thumps, scours and unsatisfactory growth. It is only a law of nature that pigs should make more economical gains through the milk of the dams than in any other way, and it is also true that the sow will furnish nourishment for her young at less cost for the raw material than any other animal on the farm. A sow's milk is rich in solid matter, which amounts to 17 to 20 per cent. On a comparative basis of 1,000 pounds live weight, a cow giving three gallons of milk a day will give in the milk one pound of fat and 77 pound of protein daily, while a sow's milk will yield 1.26 pounds of fat and 1.1 pounds of protein a day on an average. In composition sow's milk in comparison with cow's milk is very high in total fats as well as solids.



FOR BETTER MILK.

The illustration shows a stream of milk entering a pail, so constructed that falling dust will be excluded to a greater extent than if the entire top of the can were uncovered. Bacteria "ride" on dust particles—they cannot propel themselves through the air, but must depend on outside agencies to travel from place to place. The smaller the opening in a milk pail the better is that pail.

HOW TO TELL A GOOD MELON

By Professor J. W. Lloyd

PERSONS who have had occasion to eat muskmelons at hotels or to purchase them in the market have doubtless been impressed by the wide differences in the quality of various specimens. A really fine melon, with its characteristic juicy flesh and aromatic flavor, is one of the most delicious of table delicacies, but a poor melon is the most disgusting apology for a horticultural product ever offered the consuming public. Hotel proprietors take pains with their eggs and their meat, and try to serve all patrons alike, but when it comes to melons they serve one guest a cantaloupe fit for a king and another sitting at the same table, who ordered the same thing and paid the same price, a miserable cull as tasteless as a cucumber.

It is unnecessary to taste a melon to determine whether or not it is fit to eat. The appearance of the flesh plainly indicates the quality of the melon. The flesh of a good melon of high quality is almost invariably light green next to the rind, shading gradually through lighter green to greenish white as the seed cavity is approached. The lining of the cavity itself may be greenish white

or tinged with salmon, but the salmon color should not extend deeply into the flesh. If the flesh is of a uniform light green color throughout, especially if this color is associated with an absence of conspicuous fibers, the quality of the melon is usually inferior; and if the color is extremely light—practically white—and uniform, the melon is almost invariably of very poor quality. In melons of high quality the flesh has a bright, attractive appearance, while in those of poor quality the flesh is usually dull and uninviting. It is thus possible for the hotel guest to reject a poor melon without tasting it, or better for the cook to discard it in the kitchen so that it never reaches the table. Hotels which pretend to give good service might well be much more particular than they are in reference to the melons they serve.

The hotel man may object to discarding the melons which he discovers to be poor upon cutting them for the table on the ground that he cannot afford to throw away pra-

visions that have cost him money. The answer to this objection is that any one who pretends to be a buyer of table supplies on the market should be able to distinguish a good melon from a poor one without cutting it open. The netting of a good melon indicates its quality. If the netting is dense and stands out like whip-cords it indicates that the melon is fully and normally developed and that the flavor is likely to be fine. Poorly developed netting indicates a lack of full development in the melon and a corresponding deficiency in flavor. The entire absence of netting from a good melon indicates absolute worthlessness for eating purposes. There are all degrees of netting and all degrees of quality between the two extremes. In purchasing melons on the market it is possible for any one after a little experience to select the good and reject the bad.

While the netting is the chief guide in determining the quality of a melon and indicates what the melon would have been if picked at the proper degree of ripeness and

properly handled after picking, there are other external characteristics which aid in the selection of a melon as to ripeness. The characters involved are color, texture and odor. As it appears on the market a good melon in fit condition for eating is of a decidedly gray cast, with but a slight yellowish tinge on the skin visible through the netting. A decidedly yellow cast denotes overripeness, while a green cast denotes immaturity. If the melon is wilted so that it "gives" considerably when pressed with the hand it has been picked too long, or else came from a wilted vine. In the latter case, or if picked too green and allowed to ripen off the vine, the flesh will be tough and deficient in flavor. If the melon was picked at the proper degree of ripeness, but kept too long, the flesh will be broken down so that it looks like the water core of an apple, and is usually of strong flavor. On the other hand, if the melon is extremely hard, as well as green in color, it is too immature to have good flavor. A melon in the proper condition for eating may be slightly wilted, yet is fairly firm in texture. A ripe melon has an attractive odor, while an immature melon is practically odorless.